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ABSTRACT

One of the objectives of the U.S. Department of Education's National Goals for Education is that "Children will receive the nutrition and health care needed to arrive at school with healthy minds and bodies, and the number of low birthweight babies will be significantly reduced through enhanced prenatal health systems." This paper provides background information on the current state of child health, nutrition, and health care in the United States, and on medical conditions and public health problems relevant to academic achievement and the functioning of schools. The paper begins with observations about the relationship between child health and learning. Several ways in which ill health can interfere with the learning process are outlined. The paper touches on the influence of economic disparities in child health status, health limitations, the infant mortality rate, frequency of medical care, place of care, health insurance coverage, nutritional status, and birth weight. The paper concludes by noting that there is a link between child health and educational outcomes, but even substantial progress in improving children's health status cannot be relied on to dramatically alter group differences in academic achievement. Contains 26 references. (CW)

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CHILD HEALTH AND SCHOOL READINESS:

BACKGROUND PAPER ON A NATIONAL EDUCATION GOAL

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CHILD HEALTH AND SCHOOL READINESS:
BACKGROUND PAPER ON A NATIONAL EDUCATION GOAL

A child's success in school depends in large measure on things that have happened before he or she ever sets foot in an elementary school classroom. Among the important prior influences are those that relate to the child's physical and mental health. This was recognized in the recently formulated National Education Goals. One of the objectives set out under the goal of school readiness is that:

> "Children will receive the nutrition and health care needed to arrive at school with healthy minds and bodies, and the number of low birthweight babies will be significantly reduced through enhanced prenatal health systems" (U.S. Department of Education, July 1990, p. 4).

To help develop plans for achieving the objective, this paper provides background information on the current state of child health, nutrition, and health care in the U.S., and on medical conditions and public health problems that are especially relevant to academic achievement and the functioning of schools. We begin with a few observations about the relationship between child health and learning.

Child Health and Learning

It is clear that the state of a child's physical and mental health can have a substantial impact on the child's initial adjustment to school, on subsequent performance in school, and on the demands that the child makes on school resources. There are several ways in which ill health can interfere with the learning process:

- It may lead to days absent from class, either because the child is too sick to attend or because of the time required to get medical attention. In 1988, U.S. children aged 5-17 lost a total of 222 million days from school because of illness, injury, or chronic health conditions. This amounted to an average of nearly 5 days per pupil per year (NCHS, 1989a, p. 112).
- It may reduce the efficiency of the child's performance while in class, as when a student in unable to concentrate on school work because of fatigue, hunger pangs, feelings of nausea, feverishness, or vertigo, physical pain, or psychological distress.
- Ill health or injury may produce disruptive behavior in class, thereby interfering with the learning not only of the sick child, but of other students as well.
- In extreme cases, as when brain tissue is infected or damaged, disease or injury may produce a serious and irreversible impairment of the child's ability to perceive, reason, or remember.

- When ill health causes developmental delays, hearing or vision losses, mobility limitations, speech impediments, or learning disabilities, special instruction or resources may be required. The cost of the special help may reduce funds available for other educational purposes.

Significant improvements in the overall health of U.S. children could lead to noticeable reductions in the number of students who must repeat grades or receive special educational resources, and this would save money or free up funds for improving the quality of schooling for all students. It should be recognized, however, that advances in medical science can also lead to greater costs for the educational system, as when new technologies make it possible to save the lives of infants with major handicaps. These children may require special educational resources throughout their school careers.

It should also be recognized that nowadays most children in the U.S., including those from disadvantaged family backgrounds, are in good health, as described below. The number of children who repeat grades in school or experience other learning difficulties, far exceeds the number who have significant health problems (at least <u>physical</u> health problems). Thus, changing the health status of disadvantaged children is not likely to solve all or even most of their achievement problems, as some commentators seem to believe. Making sure that all children receive three square meals a day and adequate medical care may

provide many benefits, but it is not going to eliminate group differences in achievement.

HOW HEALTHY ARE U.S. CHILDREN?

In recent years, there has been so much bad news about AIDS, child abuse, the "crack" epidemic, and other public health problems that it has tended to obscure the progress that has been made over the last several decades in combatting childhood death and disease. Thanks to improved nutrition and sanitation, immunization programs, more stringent safety regulations, advances in biomedical technology, and Medicaid and other programs that make medical care available to low-income families, many indicators of child health have never achieved more favorable levels.

Signs of progress. One widely used indicator of health conditions for children is the infant mortality rate -- the proportion of babies who die within the first year of life. The U.S. infant mortality rate in 1989 -- less than 10 infant deaths per 1,000 live births -- was less than 40 percent of what it was in 1960 and only about one-third of what it was a recently as 1950 (NCHS, 1990). Death rates for preschool and school-age children have also declined substantially. The death rate in 1989 for children between the ages of 1 and 4 was less than half of what it was in 1960. And the death rate for children between the ages of 5 and 14 was less than 55 percent of the 1960 rate.

Although mortality rates provide only a partial picture of children's health status, these dramatic declines attest to real improvements in the physical health of U.S. children.

Many communicable diseases that were once common to childhood, such as diphtheria, polio, and measles, have been eradicated or greatly reduced in frequency (NCHS, 1989b). By the time U.S. children enter school, almost 100 percent of them have been immunized against measles, mumps, rubella, diphtheria, and polio (Centers for Disease Control, 1989). Although virtually all children still have bouts of acute illness or minor injuries from time to time, most grow up physically healthy. Eight out of 10 children are described by their parents as being in "very good" or "excellent" health, and all but about 3 percent are rated in at least "good" health (NCHS, 1989a).

Negative developments. Indicators of children's health and safety showed a number of troubling trends in the 1980s, however. There was no progress in increasing the proportion of pregnant women who receive appropriate prenatal care or in decreasing the proportion of low birth-weight babies (U.S. House Select Committee, 1989). In 1988, one birth in 17 was to a mother who received late prenatal care or none at all. Among black babies, the ratio was one in 9, and among Hispanics, one in 8 (NCHS, 1990). Progress in reducing the infant mortality rate slowed in the course of the 1980s. The number of pediatric AIDS cases increased dramatically. The number of cases reported in 1988-89 was five times the number reported between 1981 and 1984. There

have also been continued disparities along racial and income-related lines in child health indicators such as life expectancy, infant mortality, low birth-weight, homicide, and overall health status (NBCDI, 1990; NCCP, 1990).

Disparities in Overall Health Status

The vast majority of young children appear to be in good physical health. However, parents of poor children are notably less positive when describing their children's health than are the parents of more affluent children. Moreover, the minority of children who are in poor health is twice as large among children in poverty than among other young children.

- When parents are asked to rate their children's health in national health surveys, 95 percent of children under age 5 in poor families are rated as being in "good" to "excellent" health. However, less than half -- 41 percent -- are rated in "excellent" health, whereas a majority of non-poor children -- 58 percent -- are so described.
- The proportion of poor children who are described as being in "fair" or "poor" health -- 5 percent -- is more than twice as large as the comparable proportion of non-poor children -- 2 percent (NCHS, 1988).

(Although parental ratings of children's health are obviously not the same as a physician's appraisal, they have been found to be

reasonably good indicators of general health status, and predictive of future use of medical care.)

Disparities in Health Limitations

Among children under 5, the prevalence of chronic health conditions that limit activity is about the same for poor and non-poor children. Among school-aged children, however, the proportion of poor children who are reported by their parents to have chronic limitations jumps to nearly twice that of non-poor children.

- About one in every 50 poor children under 5 -- 2.5 percent -- has a chronic health condition that limits the child in playing with other children or other daily activities. This is about the same as the proportion of non-poor children who have limiting conditions -- 2 percent.
- Among school-aged poor children (ages 5-17), the proportion with health conditions that limit them in schoolwork or play is 9.6 percent, nearly twice as large as the proportion of non-poor school-aged children who have limiting conditions, 5.6 percent (NCHS, 1988).

These findings suggest that a substantial minority of young children in low-income families have undiagnosed conditions that are only discovered when they reach school. Many of these conditions are learning disabilities, perceptual disorders, or

emotional disturbances that become apparent in the school environment. Children with these conditions could well benefit from earlier diagnosis and treatment of their disorders.

Frequency of Medical Care

Poor children receive less frequent and less appropriate medical care than children from more affluent families. They are also less likely to have their medical care covered by some form of health insurance. Thanks to Medicaid and other child health programs, most poor children are able to receive medical care when needed. The frequency with which poor children see physicians is lower but not greatly different than that for non-poor children. Given that poor children have more health problems, however, they should probably be seeing doctors more often than non-poor youngsters.

- In 1988, 79 percent of children aged 1-4 in families with incomes of less than $10,000 had been to the doctor within the last year. However, the proportion of poor children who had not seen a doctor in a year or more -- 21 percent -- was significantly higher than the comparable proportion for children in families with incomes of $40,000 or more -- 14 percent (Bloom, 1990).
- The proportion of young children who had a regular source of routine care was 88 percent in the low-income families, versus 97 percent in the higher income families.

- Among children aged 8-11, less than half in families with incomes below $10,000 had seen a doctor for routine care within the last year, compared with 56 percent in families with incomes of $40,000 and over.
- In 1987, poor children under age 5 had an average of 5.7 doctor visits per person per year, whereas non-poor children had an average of 7.1 visits (NCHS, 1988). (These figures include both check-ups and treatment visits, and include contacts with physicians over the telephone.)
- As far as visits to a physician in the doctor's office (as opposed to a clinic or hospital setting) were concerned, poor children had an average of 2.7 per person per year in 1987, whereas non-poor children had an average of 4.2 visits (NCHS, 1988).
- For children aged 5-17, the mean number of doctor visits was 2.9 for those below and 3.5 for those above the official poverty line.

Differences in Place of Care

There is a considerable difference between poor and non-poor children and minority and non-minority children with respect to <u>where</u> they receive medical care. Poor children and black and Hispanic children are more likely to receive their care in hospital emergency rooms and clinics, and less likely to receive it in private physicians' offices or HMOs.

- In 1988, 40 percent of children aged 1-4 in families with incomes below $10,000 had clinics or hospital emergency rooms as their regular source of care. This was true of only 7 percent of young children in families with incomes of $40,000 and more (Bloom, 1990).
- Among black children aged 1-4, 41 percent had clinics or emergency rooms as their regular place of care, as did 26 percent of Hispanic children, but only 11 percent of white children.
- In 1987, nearly a fifth of the doctor visits that poor young children had were in hospital settings, and more than one-tenth were in emergency rooms. Non-poor children were only half as likely to have received medical care in these settings (NCHS, 1988).

The medical care that a child receives in a hospital emergency room may be perfectly adequate for the treatment of an acute illness or injury. But doctors working in such settings are less able to provide the continuity of care and preventive counseling that office-based pediatricians and health maintenance organizations (HMOs) can provide. Having always to take the child down to a clinic or emergency room, as opposed to being able to talk to a doctor over the telephone about a child's condition, means more of a time burden on the parent. Faced with this burden, the parent may be hesitant about taking the child to get care in cases where she is unsure whether or not it is

needed. Poor and minority mothers also frequently face language and other barriers to receiving suitable medical care for their children.

Health Insurance Coverage

One-quarter of young children who live in lower income families are not eligible for Medicaid coverage, do not get health insurance coverage through their employers, and cannot afford to purchase it on their own. This lack of medical coverage is actually more prevalent among poor children in two-parent families and children in single-parent families headed by divorced women than among those in single-parent families headed by never-married mothers, because the latter are more likely to be eligible for Medicaid. And the problem is just as prevalent among the near poor (children in families with incomes between the poverty level and one-and-a-half times the poverty level), as it is among children below the poverty line.

- As of 1988, 26 percent of children aged 1-4 in families with incomes of less than $10,000 were not covered by a health insurance plan or Medicaid. Almost the same figure -- 24 percent -- applied to those in families with incomes between $10,000 and $24,999 (Bloom, 1990).
- The comparable proportion for all children aged 1-4 was 16 percent, and for those with incomes of $40,000 or more, only 7 percent.

- The proportion with no health insurance coverage was 25 percent among Hispanic children aged 1-4, 16 percent among white children, and 20 percent among black children.
- In 1986, among poor children living in two-parent families, 37 percent had no health insurance. Among those living with divorced mothers, the proportion with no health insurance was 22 percent, whereas among those living with never-married mothers, it was 15 percent (U.S. House Select Committee, 1989, pp. 212-213).

Nutritional Status of Young Children in the U.S.

Adequate nutrition in early childhood is critical for normal growth and brain development. In the past, living in poverty often meant not having enough to eat. Indeed, the very definition of the official government poverty line was originally based on the amount of income needed to provide a family with a minimally adequate diet. Since the advent of the food stamps program in the mid-1960s, however, low-income families whose incomes were insufficient to purchase a subsistence diet (as well as pay for other necessities like shelter, clothing, and transportation) have been able to receive government-provided vouchers that could be used to buy food. Unlike AFDC, two-parent families are eligible for food stamps, and benefits are indexed to increase with inflation. There are also programs aimed specifically at bolstering the nutrition of poor children: the

School Lunch program and the Special Supplemental Food Program for Women, Infants, and Children (WIC).

In fiscal year 1987, the food stamps program served an average of nearly 21 million people per month, about half of whom were children. Nearly 17 percent of all children under 18 received food purchased with food stamps, including 60 percent of poor children under 6, and a larger majority of those in very-low income families. In addition, the WIC program provided about 3.4 million infants, young children, and pregnant or nursing women with special dietary supplements in FY 1987 (U.S. House Committee on Ways and Means, 1989, pp. 1102-1120).

Does this mean that most poor children in the United States are getting enough to eat, and enough of the right kinds of food to eat? Government survey data indicate that they are, but that conclusion is contested by food program advocates. The advocates contend that the federal surveys do not measure hunger, and that a substantial fraction of children in poor families go hungry fairly often. There are some data indicating that poor children under 6 are more likely than other children to exhibit signs of poor nutrition, such as growth retardation and anemia (Klerman & Parker, 1990). These modest but persistent differences in nutritional status between poor and non-poor children may result in part from the failure of federal food programs to reach all eligible children. It is also generally acknowledged that there are still pockets of malnutrition in the U.S. among groups like the children of migrant farm workers.

Findings of the Nationwide Food Consumption Survey

The U.S. Department of Agriculture conducts a continuing Nationwide Food Consumption Survey that includes national samples of women aged 19 to 50 years of age and their children 1 to 5 years of age. Separate samples are taken of all women and children in these age ranges, and of low-income women and children. The latter oversamples households in high-poverty areas. In 1985 and 1986, these surveys found that the average daily food intakes of young children from poor families met or exceeded the 1980 Recommended Dietary Allowances (RDAs) for total food energy, protein, vitamins, and most minerals (USDA, 1987a and 1987b). Only iron and zinc intakes were somewhat deficient, ranging from 70 to 88 percent of the recommended levels. However, average intakes of these minerals were also below recommended levels among young children whose family incomes were above the poverty level.

Unfortunately, the published survey results do not show what proportion of low-income children fall below the Recommended Dietary Allowances. However, given that the low-income means are quite similar to the overall means, it is unlikely that the proportion with dietary deficiencies would differ greatly across the two samples.

The survey results did show some differences between the dietary patterns and nutrient intakes of poor young children and those of young children from all income groups. Among them were the following:

- The diets of low-income children contained slightly more fat, cholesterol, and sodium per 1,000 kilocalories, and less dietary fiber, than those of children from all income groups.
- Total meat consumption was slightly higher for low-income children, with intakes of hot dogs and luncheon meats showing the largest difference.
- In 1986, low-income children ate more grain products than did children from all income groups, largely as a result of consuming more grain-mixture items such as pizza, enchiladas, and rice and pasta mixtures.
- On average, low-income children drank more whole milk than did children from all income groups, and whole milk (as opposed to lowfat or skim milk) was a larger proportion of their total milk intake.
- Low-income children ate less fruit than did young children overall.
- Low-income children consumed slightly less candy and sugar than children overall.
- Low-income children drank less soda, but more "Koolaid"-type drinks and fruit-flavored drinks than children overall.
- Young children from low-income families were less likely to be given vitamin and mineral supplements than were all young children.

Low Birth Weight

Nearly 7 percent of all babies born in the U.S. each year are of low birth weight; i.e., they weigh 5 1/2 pounds or less. Slightly more than one percent are of very low birth weight: they weigh 3 1/4 pounds or less (NCHS, August 1990, Table 15). With the total number of births now at 4 million per year, there are roughly 275,000 low-birthweight infants born each year, of whom nearly 50,000 are of very low birth weight.

Low birth weight is one of the leading causes of infant mortality, with 60 percent of all deaths in the first year of life occurring among low-birthweight infants. Low-birthweight babies are nearly twice as likely as other infants to exhibit severe developmental delays or congenital anomalies, and they are at greater risk of cerebral palsy, autism, mental retardation, vision and hearing impairments, and other developmental disabilities (Public Health Service, 1990, p. 10; Shapiro et al, 1980).

Children born at very low birth weights are twice as likely to repeat a grade in school and 3 1/2 times more likely to need special education services as those born at normal birth weights (McCormick, Gortmaker, & Sobol, 1990; Newman, 1990). Children born at low, but not very low, birth weights are about 60 percent more likely to repeat a grade, but not significantly more apt to require special education. A recently released study sponsored by the Robert Wood Johnson Foundation found that the developmental risks associated with very low birth weight could

be reduced through comprehensive intervention programs (The Infant Health and Development Program, 1990).

Low birth weight has been linked to several preventable risk factors including teen pregnancy, unintended or unwanted pregnancy, lack of prenatal care, poor nutrition doing pregnancy, maternal smoking and use of alcohol and other drugs (President's Committee on Mental Retardation, 1988; Public Health Service, 1979). Low birth weight babies are more common among low-education and low-income mothers than among those with more schooling and higher incomes. Black infants are more than twice as likely as white infants to be born at low birth weights (House Select Committee on Children, 1989, pp. 166-167). Puerto Rican infants are more likely to be of low birth weight than infants from other Hispanic groups or non-Hispanic children.

There was a slight decline in the proportion of children born at low birth weights during the 1970s, but there was no further progress during the 1980s. Indeed, the most recent data indicate a slight upturn in the low birth weight proportion among black infants, coupled with a slight decline in low birth weight among white infants (NCHS, August 1990, p. 6). A major reason for the lack of improvement in the percent of low-birthweight babies during the 1980s was a rise in the proportion of preterm births during this period (Taffel, 1989). This proportion rose from 9.4 to 10.2 percent between 1981 and 1988, and almost 40 percent of preterm births were of low birth weight (NCHS, August 1990, p.6).

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The U.S. Public Health Service has declared a national "Risk Reduction Objective" to reduce the overall incidence of low birth weight to no more than 5 percent of live births by the year 2000, and the incidence of very low birth weight to no more than 1 percent of live births (Public Health Service, 1990, p. 373). For black infants, the national goals are to reduce low birth weight incidence to 9 percent, and the very low birth weight proportion to 2 percent. It may be difficult to achieve these goals, given the lack of progress in recent years, and the negative effects of the "crack" epidemic on maternal and infant health in low-income, minority populations.

Conclusion

In conclusion, the child health picture in the U.S. is not a monochromatic one. There are bright areas of genuine and significant progress and darker areas where conditions have remained bad or gotten worse. There is clearly a link between child health and educational outcomes, but even substantial progress in improving children's health status cannot be relied on to dramatically alter group differences in academic achievement. At the same time, it seems that cooperation between education and health agencies, both at the state and federal level, could potentially be of significant benefit to the nation's children.

There are a large number of national objectives for improving maternal and infant health and child health that have

been set out by the U.S. Public Health Service (1990). One way of advancing the national education goal of improving school readiness is to explore and develop ways in which schools and other educational organizations can work toward furthering these objectives. There are also a number of existing educational programs and mechanisms that could be harnessed to improve child health, such as the state coordinating councils and "Child Find" efforts called for in the Education for All Handicapped Children legislation, the health-care component of preschool programs, and adolescent and parent-education programs. What remains is to develop specific steps to make better use of these mechanisms in improving both child health and enhancing school readiness.

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